

WHAT IS CLAIMED IS:

1. A high-frequency oscillation apparatus comprising:
  - an oscillator for oscillating at a specific frequency determined by a control voltage signal in a predetermined frequency modulation range;
  - a resonator coupled with a line transferring the oscillation signal of the oscillator, for resonating at a frequency out of the predetermined frequency modulation range;
  - a level detector coupled with the resonator, for detecting the resonant-energy level of the resonator; and
  - a control section for generating the control voltage signal according to the resonant-energy level detected by the level detector.
2. The high-frequency oscillation apparatus according to claim 1, wherein the line is a dielectric line comprising a dielectric strip sandwiched by electrically conductive planes.
3. The high-frequency oscillation apparatus according to claim 1, wherein the control section comprises:
  - an AD converter;
  - a storage section provided with a reference-voltage table and a reference-control-signal table;
  - a difference detection section; and
  - a control-signal compensation section, wherein the reference-voltage table stores the relationship between a detected-signal level and an oscillation frequency,
- 10 the reference-control-signal table stores the relationship among output timing, an intended oscillation frequency, and a control-voltage-signal level for obtaining the intended oscillation frequency.

4. The high-frequency oscillation apparatus according to claim 1, wherein a resonant frequency of the resonator is set to a frequency higher than the frequency modulation range of the oscillator.

5. The high-frequency oscillation apparatus according to claim 1, wherein a resonant frequency of the resonator is set to a frequency lower than the frequency modulation range of the oscillator.

6. A radio apparatus comprising:  
a high-frequency oscillation apparatus according Claim 1; and  
a transmitter for transmitting the oscillation signal.

7. A radar comprising:  
a transmitter, the transmitter comprising a high-frequency oscillation apparatus according to Claim 1; and  
a receiver for receiving a signal emitted by the transmitter and reflected from an object.

8. A high-frequency oscillation apparatus comprising:  
an oscillator for oscillating at a specific frequency determined by a control voltage signal in a predetermined frequency modulation range;  
a first resonator coupled with a line transferring the oscillation signal of the oscillator, for resonating at a frequency higher than the center of the predetermined frequency modulation range;  
a second resonator coupled with the line transferring the oscillation signal of the oscillator, for resonating at a frequency lower than the center of the predetermined frequency modulation range;  
10 a first level detector coupled with the first resonator, for detecting the resonant-energy level of the first resonator;  
a second level detector coupled with the second resonator, for detecting the resonant-energy level of the second resonator; and

a control section for generating the control voltage signal according to  
15 the difference between the resonant-energy levels detected by the first and second  
level detection means.

9. The high-frequency oscillation apparatus according to claim 8, wherein  
the line is a dielectric line comprising a dielectric strip sandwiched by electrically  
conductive planes.

10. The high-frequency oscillation apparatus according to claim 8, wherein  
the control section comprises:

5 a first AD converter coupled to the first level detector;  
a second AD converter coupled to the second level detector;  
a storage section provided with a reference-potential-difference table  
and a reference-control-signal table;  
a difference detection section; and  
a control-signal compensation section, wherein  
the reference-potential difference table stores the relationship between  
10 an oscillation frequency and the difference between the resonant-energy level of the  
first resonator and the resonant-energy level of the second resonator,  
the reference-control-signal table stores the relationship among output  
timing, an intended oscillation frequency, and a control-voltage-signal level for  
obtaining the intended oscillation frequency.

11. The high-frequency oscillation apparatus according to claim 8, wherein  
a resonant frequency of the first resonator is set to a frequency higher than the  
frequency modulation range of the oscillator, and wherein a resonant frequency of the  
second resonator is set to a frequency lower than the frequency modulation range of  
5 the oscillator.

12. A radio apparatus comprising:
  - a high-frequency oscillation apparatus according to Claim 8; and
  - a transmitter for transmitting the oscillation signal.
13. A radar comprising:
  - a transmitter, the transmitter comprising a high-frequency oscillation apparatus according to Claim 8; and
  - a receiver for receiving a signal emitted by the transmitter and reflected from an object.
14. A high-frequency oscillation method comprising:
  - outputting an oscillation signal;
  - transferring the oscillation signal to a resonator so as to excite the resonator;
  - 5 outputting a predetermined signal from the resonator, the predetermined signal being determined according to a frequency of the oscillation signal;
  - generating a control voltage signal according to the predetermined signal; and
  - 10 using the control voltage signal for compensation of the oscillation signal.
15. The high-frequency oscillation method according to claim 14, wherein compensation of the oscillation frequency comprises:
  - changing the control voltage signal in a rectangular-wave manner within a predetermined frequency range over time so as to change the frequency of the oscillation signal.
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16. The high-frequency oscillation method according to claim 14, wherein the frequency of the oscillation signal is modulated from a predetermined center frequency if the difference between a specified amount of frequency modulation and

an actual amount of frequency modulation is detected for compensation of the  
5 oscillation signal.

17. The high-frequency oscillation method according to claim 14, wherein  
a resonant frequency of the resonator is set to a frequency higher than a frequency  
modulation range of the oscillation signal.

18. The high-frequency oscillation method according to claim 14, wherein  
a resonant frequency of the resonator is set to a frequency lower than a frequency  
modulation range of the oscillation signal.